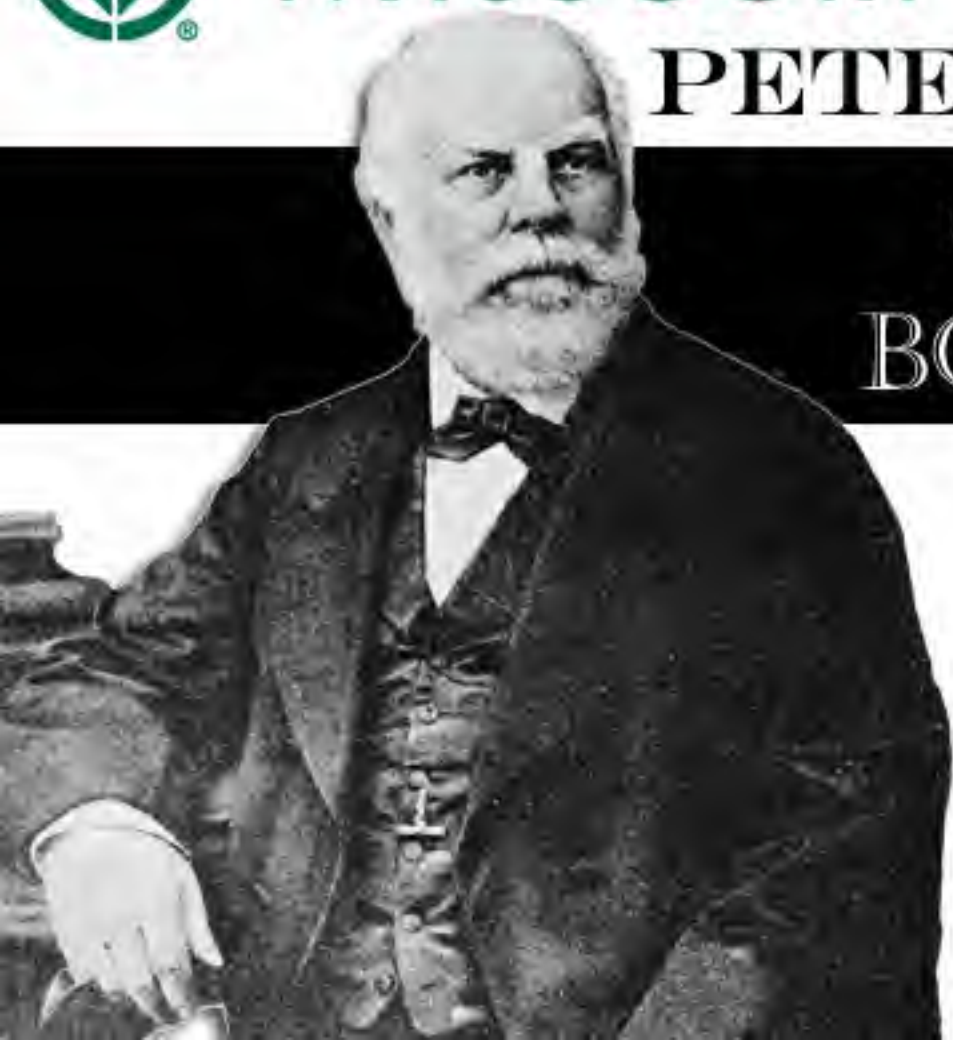


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serotina

um

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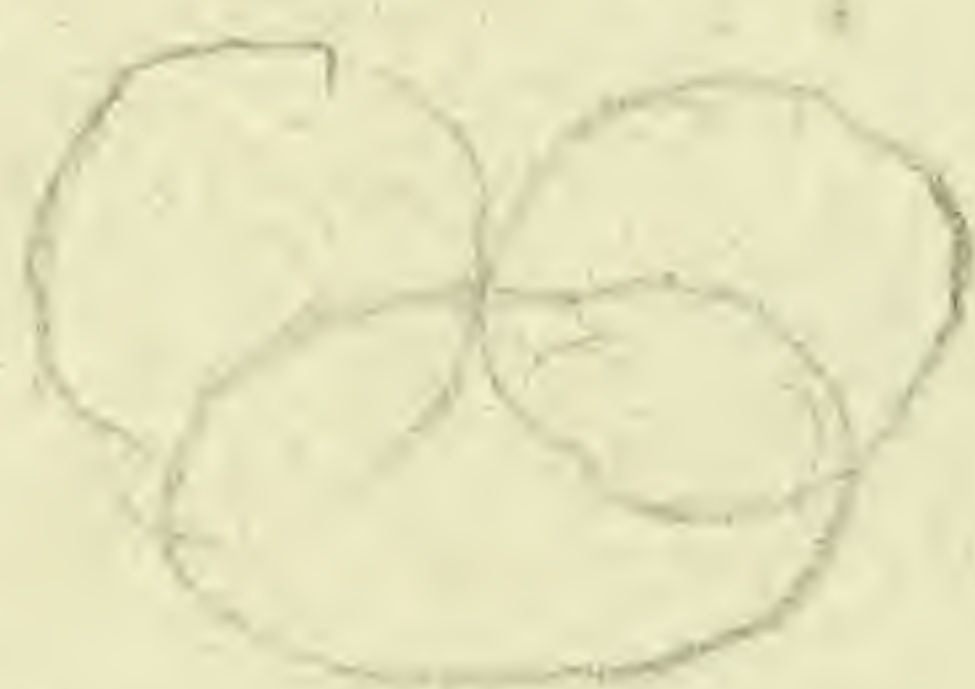


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Pollen of *Pinus serotina* ?

46 m.

May 1863



In Copulvannish very transparent



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"Pianus Carolina" ?

H. B. Missouri. 25 May 1864

(late spring) part flowering.
young tree full of flowers, and
of young cones of last year
has not suffered by the
cold winter at all

Pollen size

$\frac{14-15.6}{415}$ lin

0.034 - 0.038

$\frac{29-32.5}{415}$ mm

May 7 1865 just beginning to flower
(same young tree)

$\frac{16-18.5}{415} = 0.039 - 0.045$
mostly 0.041 - 42



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Pinus serotina ?

May 1865

0.016-0.018 lin

403 missum

April & May 1865

full flower May 7th



Pollen x415 of young male about
about 3 lines long. April 25 1865

scales in 11 or 12 vertical rows



7th Scale a little
side ways, between
the 4th & 6th, not
before the 4th

after drying 3 weeks
the soaked immature
pollengrains were apparently
a little smaller than the above,
but not folded or shriveled;
only the middle cell was a
little more transparent



0.041 lin

male about 10-12
lines long

6 or 7 scales of
immature

male Spike's axis 12-18
lines long

Remarkable growth of Pollengrain in 12 days
from 0.016-0.018 to 0.040-0.045 lines
see also *P. resinosa*



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Pinus serotina ?

May 31 1865

Pollen x45

Colt Germantown Pa sub nom *P. pungens*
by Mr. Mehan's neighbor

0.036 - 0.042

mostly 0.038 - 0.040 lin



8 and 10 bracts of perigon



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"*Pinus serotina*" H.B. Missour. May 1870



8 invol. scales

lowest (lateral) scales
strongly carinate, large

adventitious buds from trunk,
sometimes with scale flanges,
no leaves, or with both



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Pinus serotina

April 4 1871

Pollen grains

scarcely in bloom March 28 1871

Bluffton S. C. B. M. M. M.

$\frac{33.5-37.5}{415}$

mostly $\frac{34-35}{415}$

8-9 or 10 involucre
Scales; exterior lateral
half as long as interior



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Leitch & Corlies

DRUGGISTS

South West
Corner Fifth
and Market
Streets

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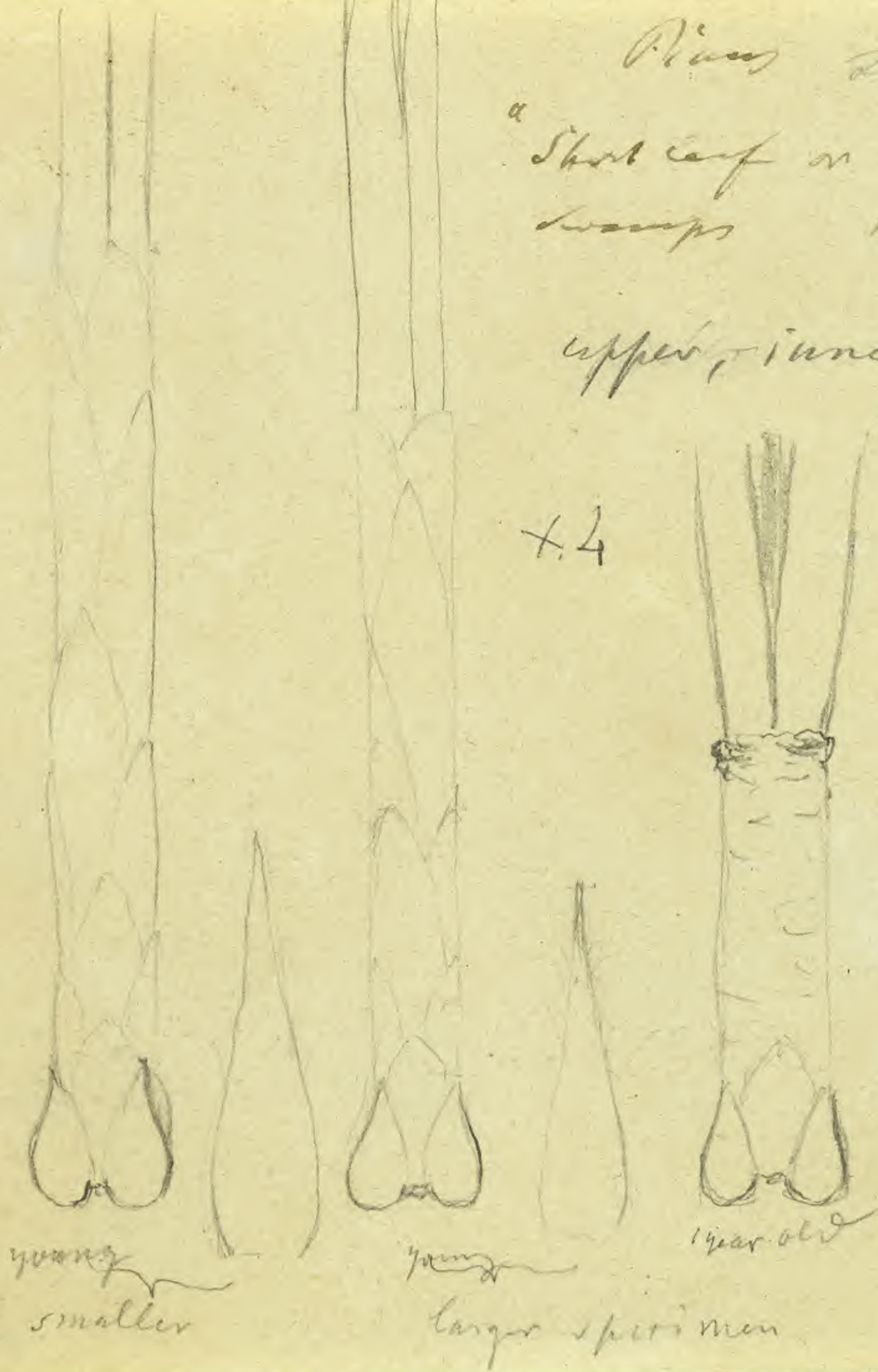
Pinus serotina ?

May 20 1871

" Short leaf or Rosemary Pine
Swamps Beaufort North Carolina

upper, inner side Jas C Davis
May 1871

x.4



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JAS. C. DAVIS
MAY 20 1871



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Leitch & Corlies

Carriers

South West Fifth
Corner and Market
Streets

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2 tabs

Pinus Greggii

ternate - latentes?

156

BI-MONTHLY SUMMARY OF SCIENCE.

3.— Monthly mean of relative Humidity.

JANUARY.

YEAR.	AT 6 A.M.	9 A.M.	12 M.	3 P.M.	6 P.M.	9 P.M.	MEAN OF MONTH.
1861.....	91.5	87.5	78.5	79.0	85.2	90.0	72.2
1862.....	91.7	83.2	71.9	69.8	76.8	81.7	85.3
1863.....	90.8	79.3	65.9	62.7	75.4	79.8	79.2
1864.....	91.3	83.3	72.1	70.5	79.1	83.8	75.6
Mean	91.3	83.3	72.1	70.5	79.1	83.8	78.1

FEBRUARY.

1861.....	89.1	79.2	65.8	61.5	72.2	75.5	63.3
1862.....	94.1	83.9	75.0	71.9	79.3	86.0	73.9
1863.....	79.0	65.0	53.5	49.0	59.9	70.0	81.7
1864.....	87.4	76.0	64.8	60.8	67.1	77.2	62.7
Mean	87.4	76.0	64.8	60.8	67.1	77.2	70.4



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BI-MONTHLY SUMMARY OF SCIENCE.

II. — ATMOSPHERIC ELECTRICITY, TEMPERATURE
AND HUMIDITY.

*Observations made at St. Louis, Mo., based upon daily observations
at 6, 9, 12, 3, 6 and 9 o'clock, from morning till night. By A.
WISLIZENUS, M. D., Saint Louis, Mo.*

1. — Monthly mean of positive Atmospheric Electricity.

JANUARY.

YEAR.	AT 6 A. M.	9 A. M.	12 M.	3 P. M.	6 P. M.	9 P. M.	MEAN OF MONTH.	NO. OF THUNDER STORMS.	PREVAILING WINDS.
1861.....	15.8	19.4	20.3	15.6	15.2	12.7	16.5	0	S.E.
1862.....	11.5	15.1	13.2	11.1	11.1	10.5	12.1	1	S.
1863.....	18.2	22.1	18.3	15.0	16.9	10.7	16.9	1	S.E. and S.
1864.....	18.7	23.4	17.6	13.3	12.3	9.4	15.8	3	S.W., S.E., W.
Mean.....	16.0	20.0	17.3	13.7	13.9	10.8	15.3

FEBRUARY.

YEAR.	AT 6 A. M.	9 A. M.	12 M.	3 P. M.	6 P. M.	9 P. M.	MEAN OF MONTH.	NO. OF THUNDER STORMS.	PREVAILING WINDS.
1861.....	12.8	15.3	13.9	10.5	11.5	8.9	12.1	2	S.E.



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...this gravelly ball, the mundane sphere."

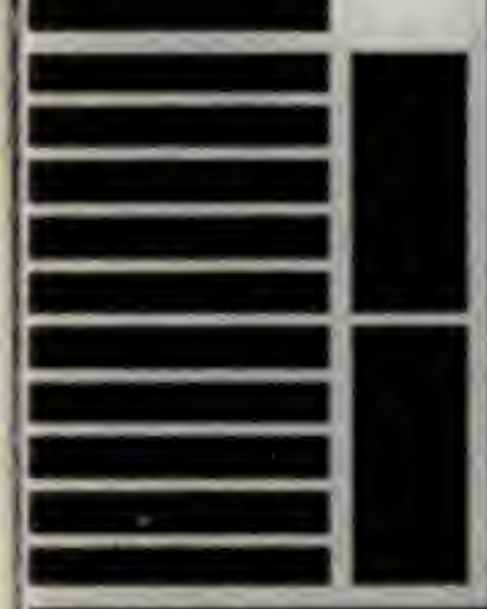
early history of our planet two great powers were predominant. These with inveterate resolution for the domination of empire. They were eous powers, and unconfined aqueous forces. To the freaks of their are to be attributed all the phenomena of inanimate existence, as well rsity of the physical appearance of the earth and the ocean.

Primarily the igneous forces—the powers of internal heat—were predominant, and successfully repelled their aqueous rival. But as time wore on the dominant, confident of superiority, grew less alert and more restive, thereby permitting the eternal vigilance of his untiring antagonist to obtain a secure foothold within the disputed domain. The conflict was now a strife for empire—a death struggle. The igneous forces, in the vigor of youth, strength and activity, gained a partial victory, and the mountains, continents and islands rose triumphant over the sea,—the guerdons of prowess and the trophies of triumph. Old Ocean though defeated, was not conquered. He consented to a truce, that he might re-assemble his scattered forces, and renew the contest. He swore eternal enmity, and, Dane-like making murderous incursions and foraging forays into the border land whenever opportunity affords, he has ever since ranged restlessly round the world, gnawing the face of the beetling cliff, lashing the coasts, leaping upon and furrowing into fiords the land. He impressed the rivers and rills, "and right faithfully do they forage to supply the cravings of his insatiate maw."

patula Linn
1961

in near 0000 Dth

580-9



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Atlantic Ocean.

The Catskill Mountains are the "bench-mark of the elevation of an elevated plateau which extended from their site to Massachusetts Bay. The fertile and salubrious basin occupied by the whole of middle Tennessee, was formerly covered by the Cumberland Table-land, which extended over 150 miles farther westward than its present limit. This table-land and the abrupt elevation in the vicinity of Chattanooga are outlines in relief indicating the extent and elevation of the vast plateau which has been planed down and scooped out by the tremendous denuding powers of nature; the materials have been applied to the formation of that region of country which has since been erected into the States of Georgia, Alabama, and Mississippi.

But all these are insignificant when compared with the enormous excavation wrought by the Colorado. This patriarchal stream takes its course through an elevated plateau hundreds of miles in extent—traverses the great American Desert. Shrunken and shriveled—palsied by age, but still potent to carry on the work of destruction on a less magnificent scale—it now meanders a silver thread in the region of dim twilight thousands of feet beneath the level at which it once ran, and over that “defiant granite, which buffeted the lightnings that rent Sinai, and frowned upon the flood that drowned the world.”

The leveling process is not yet arrested. The thunder-voiced Niagara, over which Nature has placed her eternal iridescence, has been toiling for countless

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Pianus patula Schiede.
Schiede 153¹¹⁶ type spec - ! fl 6-7¹/₂"
Hort Bot Reapel fl 8-11 flowers tannish
Chromley 633 fl 5" rigid
625 = Hort Reapel fl pendula ten 3-4"

Hartweg 442 stout leaves 6-7"
(also 463 - fl tannish)

Royl similarly stout 5-6"

Lieber 9. coccinea - thin 8-9"
3. " stout 7-8"
White HB Bot 555 - thin 4"

Heller 460 undeb stout 5-6"

Comes apical

or sometimes lateral

sometimes apical?



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Berlin Jan 1869

retains

P. patula retains, healthy even on old specimens.
P. Toronto the same, but has much more
robust leaves



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